



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

VITAL STATISTICS FOR THE TWELFTH UNITED STATES CENSUS.

BY CRESSY L. WILBUR, M.D.,

DIVISION OF VITAL STATISTICS, DEPARTMENT OF STATE, LANSING, MICHIGAN.

It has long been a reproach to the American people that no accurate vital statistics of the country as a whole could be obtained. It is true that there has been a thin fringe of accurate registration along our eastern border, and that the larger cities in all parts of the country make a more or less thorough attempt to obtain correct mortality statistics, based upon certificates of death and burial permits, but it is nevertheless certain that reliable information relative to the vital conditions of by far the larger part of the population of the country is nearly or quite wanting.

Compilers of the successive United States censuses have reiterated their acknowledgments of failure since the first attempt to present vital data. The reasons for inevitable failure, when the collection of vital statistics is attempted by the ordinary census method of enumeration, were clearly stated in the "Report of the Seventh Census" (1850): —

"The tables of the census which undertake to give the total number of births, marriages, and deaths in the year preceding the first of June, 1850, can be said to have but little value. Nothing short of a registration in the States will give these data with even approximate truth; and where such a system has been best established difficulties have continually occurred, requiring a very long period of time to be removed. Against all reasonings the facts have proved that people will not or cannot remember and report to the census taker the number of such events, and the particulars of them, which have happened in the period of a whole year to eighteen months prior to the time of his calling. It might be possible to obtain the facts for a single month."

In a paper on "The Eleventh United States Census," read before the Royal Statistical Society, London, December 4, 1894, Hon. Robert P. Porter referred to the results of the enumeration of vital statistics by the last United States census:—

"A permanent census would also improve our vital statistics, which includes the variations of the life of the people as affected by births, marriages, and deaths, which must always be considered in relation to the living population by color, race, and the special tendencies to disease and deaths in different localities. Under our present system we have less accurate and valuable data than almost any other civilized country. This is owing to the fact that it is not possible to obtain a complete record of the number of births and deaths occurring in a community, unless that information is noted at the time or very near the time of the occurrence of the birth or death. Outside of the New England States, New York, New Jersey, and about half the counties in Alabama, we have no proper registration laws except, of course, in nearly all the large cities. Practically we have no complete knowledge of the number of deaths that occur in far the greater part of the United States. . . . With us you will readily see that a continuous registration of births, marriages, and deaths must be a State matter. The national government can act as tabulator and publisher. One of the most important things for a permanent census would be to follow up this work until all States adopted registration laws. Today the personality of Dr. Billings has alone kept us from disgrace in this important branch of statistical work. He has undoubtedly turned out excellent work in certain directions. With the right material it would have been all that could be desired."

It appears to have been generally conceded that the prospect for obtaining accurate vital statistics of the United States depended upon the gradual extension of systems of State registration. If it were solely dependent upon the growth of such systems it would be, I believe, a very long time in the future before we should have results fairly representative of the United States as a whole.

The successful registration of vital statistics in a community implies a considerable degree of social development,

wealth, and density of population. First of all, in this self-governed country, the people whose vital statistics are to be registered must have attained such an average degree of culture as to recognize the usefulness of accurate vital statistics, and hence to coöperate with the officials intrusted with the practical work of registration. With a low standard of living, a paltry estimate set upon human life and happiness, it cannot be expected that the essential personal details required under a modern system of registration will be returned as fully as from a community in which men set a higher value upon themselves,—possess a greater personal and family pride. The motives leading to the establishment of accurate vital records, especially of marriages and births, are closely akin to those inspiring genealogical research, and it will be found that a greater interest in these subjects will develop in the future history of this country than now exists, especially in the newly-settled Western States.

Besides the general desire to possess accurate vital statistics and complete personal records, the community in which a modern system of registration is to be established must be prepared to pay a fair and reasonable price for the labor necessarily connected with the work of registration. This implies a suitable fee to the local registrar, with special compensation for extra trouble in securing delinquent returns and for completing unsatisfactory records. Of course, when the registrar receives a salary, as in the health offices of cities, the labor incidental to registration may be properly considered as merely a part of the general health service, and hence no special compensation will be demanded. It ought also to imply — but seldom does in practice — the payment of an adequate fee to physicians for issuing certificates of cause of death, frequently a very difficult matter, requiring a high degree of professional knowledge to determine. Post-mortems are or should be required in many cases before a satisfactory decision can be reached. The medical profession has freely assumed without compensation many of the

burdens of registration, purely from an interest in the improvement of vital statistics, and may be expected to do so in the future as long as the necessities of the case shall require. Nevertheless, a recognition of the principle that personal service rendered for the benefit of the community is entitled to reward may not be out of place. When a fee, even if a merely nominal one, is paid to physicians for reporting births and deaths, it will be much easier to insist upon accurate returns and to raise the general standard of certification of causes of death.

The question of the social development and resources of a community, as related to the practicability of establishing a registration system, is intimately connected with the density of population. In a paper* read before the American Public Health Association at Denver, in 1895, I endeavored to show the connection between the present and probable future density of population of this country, and the time that must elapse before a general system of vital registration covering the entire United States may be expected to appear. Briefly, the argument was as follows:—

The average density of population of the States having fairly accurate systems of registration was, in 1890, 105.31 inhabitants per square mile; of those having imperfect registration, 32.19; of the United States as a whole, 21.31. Taking the very low figure of about 40 persons per square mile as the lower limit of practicable registration, several decades of the next century must pass, with our former rate of growth, before we can reasonably hope to possess complete vital statistics. Even a greater period will probably elapse if the establishment and coördination of State systems into a harmonious whole be left entirely to the individual development of the several States.

The registration States available for the census of 1900 are those of the North Atlantic division, with the exception of

* "The Outlook for a General System of Registration of Vital Statistics in the United States," *Jour. Am. Public Health Assoc.*, July, 1896.

Pennsylvania and Delaware, and the District of Columbia, from the South Atlantic division. To these may possibly be added Minnesota, part of Alabama, Maryland, Pennsylvania, and Michigan. Pennsylvania adopted an objectionable plan of enumerating births and deaths in 1893. Dr. Lee and the State Board of Health are now laboring earnestly for a genuine registration law, and with good prospects of success. In Michigan, where the question of improved methods of registration has been agitated for several years, the outlook for favorable action at the coming session of the Legislature (1897) seems excellent. These anticipations may prove vain, however, and we are assured so far of no additions to the registration column since 1890, except from the State of Maine, added in 1892.

Even in the so-called registration States, registration, especially in the rural districts, is by no means perfect. The death rate of the rural areas in registration States in 1890 was 14.99, as compared with the urban rate of 23.58. Dr. Billings concluded that these rates "were a little too low, the deficiency being chiefly in the rural populations, where the actual death rate was probably about 15.5 per 1000." So that even in the registration States, largely urban as they are, the mortality of the city population has an added weight in excess of its numerical proportion in determining the general death rate.

The aggregate population of the States now actually available for registration purposes was, according to the Eleventh Census, 12,542,416 persons, or about 20 per cent of the total population of the country. If to this number we add the population of cities having 8000 inhabitants and over in the United States outside of the registration States, many of which have some form of local registration which might be utilized for census purposes, we shall have an aggregate registrable population of 23,671,646 persons, or nearly 38 per cent of the total population in 1890.

The population represented by the registration States alone is undoubtedly sufficient, if it were of a properly representative character, to give us accurate knowledge of the mortality of the United States as a whole. But for many reasons it is far from being so constituted that any inferences as to the mortality of the United States may be safely drawn from the results obtained in the registration States. Some of the more important reasons why this is true may be mentioned: —

1. The narrow geographical range of the registration States as compared with the continental expanse of the country as a whole.

2. The peculiar age and sex distribution of the population of the registration States, especially the New England States, predominance of females, large proportion of elderly persons and scarcity of infants and children, which is quite different from the average distribution of these elements in the country at large.

3. Excessive preponderance of urban population in the present registration States.

4. Disparity between the occupations and general conditions of life in the registration States and the country as a whole. This point may be illustrated by the fact that about 18 per cent of the working population of the North Atlantic division were engaged in agriculture, fisheries, and mining in 1890, and about 37 per cent in mechanical industries; while for the United States as a whole the proportions were reversed, being 40 per cent and 22 per cent, respectively.

5. No typical Southern State with a large negro population is included among the registration States at present. Some most interesting sociological problems depend for their solution upon accurate vital data of the African race in this country, and the census ought to make special provision for collecting such statistics. Again, rural data are here especially desirable, from which the deteriorating effect of town life upon a very impressionable class of population may be eliminated.

It was in view of these facts, and with the hope that the beginning of the twentieth century might not find us entirely destitute of reliable information concerning the vital statistics of the United States as a whole, that I ventured to suggest, in the paper before the American Public Health Association previously referred to, a method whereby it will be practicable to obtain information that for many purposes, if not for all, will be as useful as an absolutely complete continuous registration of the entire country. The plan may be defined as a continuous complete registration of certain selected districts of non-registration States. It is designed to give exact quantitative data concerning typical localities suitably distributed throughout the United States, in contradistinction to what may be called the merely qualitative data heretofore collected for non-registration State areas under previous censuses.

What we know of the vital statistics of some of the so-called non-registration States is fairly satisfactory at present, so far as regards its *qualitative* character. By this I refer to the general indications of the statistics and to those relative rates not dependent upon a complete enumeration, such as the proportions of decedents by age and sex, comparative mortality from various causes of death, and the like. Besides the information afforded on these points by the decennial census enumerations heretofore, it must be remembered that quite a number of these so-called non-registration States have, in point of fact, State systems of registration in operation, in some cases for many years, and under which very considerable quantities of statistics have been collected. Among these States are California, Illinois, Indiana, Michigan, and Minnesota, in which sufficient data have been annually collected for years to establish the general course of mortality in them, and to determine with accuracy the various details of age and sex incidence, influence of nationality, color, etc. It is by no means necessary to have an absolutely complete registration to establish facts of this character with the greatest certainty.

The results obtained by the Michigan registration system, as conducted by the Department of State since 1867 for deaths, and by the State Board of Health for sickness since 1876, are undoubtedly reliable so far as many intrinsic relations of importance are concerned, although the mortality statistics are known to be deficient by a considerable percentage, and the morbidity statistics were avowedly instituted as representative, not exhaustive. These two sets of returns, collected by entirely different means, compiled in separate offices, and complete in very different degrees, agree in so many important particulars that they mutually confirm each other's validity.

Nearly all the published vital statistics of the United States census are based upon data scarcely more perfect, except for registration States, than the mortality statistics of Michigan; yet I do not believe that the introduction of more perfect registration will disturb the knowledge which Dr. Billings, in the mortality reports of the last two censuses, has so carefully derived.

What we do not know at present, but what I believe we may readily obtain by a thorough quantitative registration of small representative areas of each State, are facts like the following:—

1. Annual birth rates and death rates for the United States as a whole. These would be of great value for international comparisons.

2. Annual birth rates and death rates of each State. Taken in connection with the age distribution of the population, rates could be derived that would serve as valuable measures of the comparative salubrity of various localities.

3. The exact prevalence of diseases in different parts of the country at a given time, as indicated by the morbidity and mortality statistics. This information should be secured and reported with sufficient promptness to make the results available for restrictive purposes by health officers. The movements of epidemics should be known and their coming

anticipated by threatened localities, which would thus be enabled to guard against them.

4. The continuous history of the prevalence and intensity of epidemic and other diseases over the whole expanse of the country would enable instructive comparisons to be made with the meteorological data collected by the Weather Bureau, and would probably afford light upon many important questions relating to the etiology of diseases.

5. Evidence concerning the fecundity of marriage, the fertility of women of different nationalities, the hardiness of the native American stock and its prospects of survival in the struggle for existence and predominance now waging in this land. These and other important sociological questions await the coming of accurate vital statistics for their satisfactory discussion, such as would in time be provided by registration of typical districts.

The plan proposed for obtaining such information relative to vital statistics is very simple, and is analogous to that pursued by the government Weather Bureau in obtaining meteorological data. It is by no means necessary to record all the weather there is, if such a thing were possible and every locality could have its separate station. A very few stations, as compared with the vast extent of the country whose climate they represent, serve to collect typical data that accurately represent the whole body of meteorological conditions.

So might vital data exhibiting the ebb and flow of human life in the nation be collected at a few carefully chosen registration stations, whose validity would be as great as the statistics of the temperature, rainfall, clouds, and the movements of storms. Let a suitable number of registration districts be established in each non-registration State, in which complete and continuous registry of vital statistics shall be maintained, under strict government supervision, for each year of the intercensal decade. Such districts might well be counties, and they should be so selected, with refer-

ence to geographical, topographical, climatic, and other conditions, as to be fairly representative of the general constitution of each State. Density of population, nationality, and prevailing occupations of the inhabitants should also enter the grounds of selection. Death rates based upon the aggregate registration in the several registration districts of a State would be a fair representative of the mortality of the State as a whole. By giving a weight to the death rate of each State corresponding to its percentage of total population, a representative death rate for the United States could be obtained that would approximate much more nearly to the truth than any hitherto obtained by the census. For many purposes, however, it would not be necessary to go beyond the absolutely accurate rates of the primary registration district in stating the mortality of a section of this country, and in these we should begin with the century to build up a basis of correct vital statistics that in time to come would merge readily into a general system of complete registration.

As to the desirability of such partial registration,—partial with reference to the limited extent of the area covered, but thoroughly exhaustive for the individual registration districts,—I beg to quote an expression of opinion from an eminent English authority. In response to a question from me, Dr. G. B. Longstaff, Vice-President of the Royal Statistical Society, writes as follows : —

“ I am strongly of opinion that continuous registration of even a small fraction of the State would be far superior to the present very imperfect decennial record of the whole.

“ I merely venture to suggest that the areas chosen should have defined boundaries not likely to be altered, so as to afford comparisons for many years to come. This would not prevent the number of such areas being added to from time to time. Changes of boundaries have caused much trouble in the old country.”

I have little hesitation, therefore, in submitting this project to American statisticians, so far, at least, as their approval of

its desirability is concerned. Indeed, any plan which carries any promise of relief from the unsatisfactory methods of the past will be likely to meet with a certain measure of approval. The most important feature to be discussed is not merely its desirability as a method of supplying statistical information, but its practicability and expediency under the present conditions of development of our national census.

It may be said at once that an absolutely essential requisite for the success of this method of collection of vital data is a certain degree of permanency in the Census Bureau. Continuous systematic work, not spasmodic efforts ten years apart, is indispensable before we shall have any vital statistics worthy of the name. Besides the rural registration districts, set apart and conducted as a part of the census inquiry, a permanent Division of Vital Statistics in the Census Bureau would also be able to perform an invaluable work in regulating the municipal systems of registration now in operation, and in rendering their results available for general use. While nearly all of the larger cities of this country have ordinances relating to the registration of deaths, nothing is more certain than that the actual results obtained under them are not always comparable. There are many sources of leakage. The accuracy of registration may vary widely in the same city in different years, depending upon the administrative ability of the registrar. Rivalry often enters into the question, and laxity of registration is winked at in order that the death rate may be as low as that of a neighboring town. The statistics themselves, even when accurately collected, do not always comprise identical data, and, except in our largest cities, are not compiled and presented in a satisfactory manner for statistical use. The government, through the Census Bureau, should utilize the large current of municipal vital statistics now for the most part going to waste. Uniform blanks, uniform methods of securing full returns, a rigorous system of inspection by agents of the Census Bureau, in common with the rural reg-

istration districts, would produce results that would be thoroughly reliable. Every local registrar would be to a certain extent in the government service, and the prestige of such connection with the national system of statistics would in itself tend to elevate the character of the returns.

Every facility should be accorded registrars thus acting as agents of the Census Bureau by other departments of the general government. Certificates of births and deaths mailed to the local registrars by physicians should be carried free by the postal service. Such post-free returns form an important part of the modern system of registration recently established (1896) in the Province of Ontario. So, also, returns sent in by local registrars to the central registration office of the State (the original certificates are thus sent in New York and in the proposed law for Michigan) should be carried without cost. Wherever an accurate system of vital statistics is put into operation by local or State authority, it removes the necessity for the collection of similar data by the government, and therefore its operations should be facilitated as part of the national census work. A general compilation of the results of the State systems of registration, even the more imperfect ones, for intercensal years, would yield results of value, and should constitute a part of the United States census work.

There is at present no clearing house for coördinating and rendering generally available the results obtained in the various States. The methods applied by Dr. Billings so successfully in New York and Brooklyn, Washington and Baltimore, and other cities, may well be applied to the registration States, and, with certain reservations, to the results obtained in the so-called non-registration States under State systems of registration that fail to reach the prescribed standard.

Complete and continuous vital statistics from selected representative districts in non-registration States, accurate urban statistics, and reliable data from the nine registration

States, taken in connection with the large mass of statistics defective in absolute value but of good qualitative character from the non-registration States, will enable us to begin the century with vital statistics of which we need not be utterly ashamed, and which will be perfectly comparable with accurate vital data from any part of the world. It will then be merely the task of future censuses to broaden the basis of the representative districts, keeping pace with the general advancement in wealth and density of population of the country, until every State that does not possess a satisfactory system of its own is adequately represented in the national system.

NOTE. — The principal recommendation of this paper — the establishment of representative registration in non-registration States — is provided for in the bill for the establishment of a permanent census service, which has been submitted to Congress by Hon. Carroll D. Wright. I regret, however, that the language of the bill apparently provides for such registration only “at the time of the decennial enumeration of the population.” While even thus we should be able to secure better data than formerly, the chief merit of the representative registration system depends upon its continuity. There is no guaranty that a registration conducted once in five or ten years ascertains average conditions. The connected history of epidemic prevalence of diseases, to mention no other instance, it will be impossible to ascertain. Even economically it would seem inexpedient to discontinue such representative registration after a single year, inasmuch as the installation of the necessary registration machinery, appointment and training of local registrars, etc., will make the first year the most expensive, and its results the poorest.

FEBRUARY 1, 1897.—Col. Wright informs me that the desired changes have been made, and that the bill now provides for continuous intercensal registration in non-registration States.

Remarks by Prof. W. F. Willcox.

I have read the paper of Dr. Wilbur with much interest. It may be fairly argued that in American statistical work there is no graver deficiency than in vital statistics; in no branch, certainly, are we as a people so far behind the main countries of western Europe. And yet vital statistics is probably the oldest division of the field, and per-

haps best adapted to serve as an introduction to the study. It has attained a rounded development, and may easily be made of interest to students or the public. Hence the success of some such plan as that outlined in the paper, in addition to its obvious benefits, would contribute not a little to a general and critical use of the statistical method in other fields by American students of social conditions. It is with regret, therefore, that I find myself compelled to doubt the expediency of the means proposed for reaching an end which commands my warm approval, and with hesitation that I express dissent from the conclusions of one whose long studies in vital statistics entitle his opinion to weight.

Dr. Wilbur's project looks directly towards a national system of registration of births, marriages, and deaths. His proposal of registration districts in each non-registration State, "under strict government supervision, for each year of the intercensal decade" (page 196), must mean supervision by the national government of records not demanded by local sentiment with such vigor as to have resulted in legislation or its enforcement. The Division of Vital Statistics in the national Census Bureau would have power to regulate "the municipal systems of registration now in operation" (page 198), to secure uniformity in blanks and methods, and to establish "a rigorous system of inspection," and the postal department would carry the returns to the State capitals without charge (page 199).

Now there might be much force in a contention that the protection of health, which formerly was mainly an individual or family affair, and in densely settled civilized countries has gradually been made a subject for municipal or state intervention, is now becoming a national or even international question; but even such an argument would not convince me of the wisdom of Dr. Wilbur's conclusions. It may be pointed out that the plan differs widely from the one embodied in the bill drafted and reported to Congress by the Commissioner of Labor. That provides for a decennial, or, as I understand the modification introduced by Commissioner Wright, an annual enumeration after the usual census method. I do not understand that it contemplates the maintenance of a system of permanent registration in certain selected localities. Our late President wrote many years ago: "That large party which advocates a strict and jealous construction of the constitution would certainly oppose any independ-

ent legislation by the national Congress for providing a registration of births, marriages, and deaths." [F. A. Walker, Art. "Census" in *Ency. Brit.*] And in the judgment thus expressed I heartily agree. Aside from my general opposition to the method suggested, I am disposed to fear that its advocacy at this time might increase the difficulties in the way of providing at once for the taking of the Twelfth Census.

The preceding statement is an outline of a position I would gladly argue in detail did space permit. In common with all negative criticism it is open to the objection of being merely distinctive, and to avoid this charge a few words may be added upon an alternative method of approaching a similar question.

My present residence is in a city of about 12,000 inhabitants, in a State which has recently introduced a general system of registration of deaths. No burial is legal without a permit, and permits are issued only by the registration officers and after registration. Yet the deaths reported from this city to the State Board of Health showed a death rate of about 13 to 1000. Various bits of evidence led to the conclusion that the record was incomplete. Careful personal investigation proved that from one-fourth to one-third of the deaths escaped record. It was the practice of the registrar to issue a permit on presentation of a certificate of death, regardless of the interval of time that had elapsed since the death, of the undertakers to obtain burial permits at their convenience, and of cemetery keepers to allow interments without the production of a permit at the time of the funeral. The local Board of Health was appealed to, letters written to the local press, an address made by request before the county medical society, and a local sentiment slowly aroused which is tending to make such violations of law impossible in the future. The method is toilsome and often seems to accomplish little, but I believe that it follows sounder lines than those advocated in the paper before us. It contributes little toward ascertaining the death rate of the whole country; but would that number, if we had it, be of much more practical value than the death rate of Europe? Meanwhile this method has done something to convince local taxpayers that the health of the city is not unusually good, and that a municipal sewerage system is a necessity.

Remarks by L. G. Fouse, President of the Fidelity Mutual Life Association, Philadelphia.

The plan of a permanent Census Bureau advocated by Dr. Wilbur and others, and referred to in his paper, would certainly be a great improvement over what we now have. However, in my opinion, it would be a most difficult matter to secure the coöperation and harmony between a national Census Bureau and the bureaus of the several registering States, necessary to collect, compile, and render the data useful. It seems to me that if Congress found constitutional authority for establishing a national Weather Bureau, it should have no greater difficulty in finding ground for establishing a permanent Census Bureau, embracing vital and other useful statistics. Hon. Robert P. Porter says: "You will readily see that a continuous registration of births, marriages, and deaths must be a State matter." Not necessarily. It is true that the constitution provides that anything which is not expressly authorized is left to States, but Congress has power to enact laws to promote science and to regulate census enumeration, and subordinate officers can be appointed without limit for any purpose Congress may authorize. Permanent registration is absolutely essential to a correct and satisfactory census enumeration. While the constitution directs a census to be taken in periods of ten years, it likewise directs Congress to enact laws necessary for the taking of a proper enumeration. Every student of our census matter and every observer knows that the results of previous enumerations have been very unsatisfactory, and they will continue to be so until we have a national compulsory registration law. While the States may and should coöperate with the national government, the Division of Vital Statistics of the permanent Census Bureau should not in any degree be dependent on the vacillating and uncertain acts of forty-six different legislatures.

The first step, therefore, as a part of the periodical census enumeration should be the enactment by Congress of a compulsory registration law and the establishment of a bureau to enforce the law. Local registrars should be appointed in every county, with whom births, marriages, deaths, and cause of death should be registered in permanent records provided for the purpose. The data should be entered by the local registrar upon cards, and forwarded by him daily to the chief registrar at Washington, where the cards for the entire country

should be systematically arranged for convenient reference. To aid in the support of the bureau a moderate fee of from twenty-five cents to one dollar should be charged for searches, which would produce a considerable revenue.

Such a bureau would be of inestimable value to the national health. Take, for example, consumption. The disease is infectious, and in a manner contagious as well as hereditary, in that a constitution predisposed to it may be inherited. Consumption is on the increase, and is now the direct cause of more than one-third of all the deaths, and the indirect cause of many more. With the facilities of travel in this country, and the disposition of those afflicted to seek a more favorable climate, the disease in a manner has become the nation's pest. Many localities have become a regular hot-bed for it. A system of registration would be of great value to scientific men in the study of the disease and its cure, of the effect of diversified climate, occupation, environment, etc., and would, of course, result in great benefit to the general public. The reason that there is such slow realization upon the discoveries in science and upon the progress in medicine and hygiene is that their general utility is not understood by, nor brought directly home to, the consciences of the people.

There are other, and to my mind more forcible, reasons for compulsory registration of vital statistics than those already mentioned or given by Dr. Wilbur. It can be demonstrated beyond the shadow of a doubt that the lack of proper information of vital statistics has been the direct cause of money loss to millions of our people. This can be forcibly illustrated by the experience of the British Friendly Societies. Such societies, from the year 1650 to about the year 1700, operated upon crude methods, had no data of vital statistics upon which to base computations, and as a result, the experience of half a century, which proved disastrous to many of the contributors of the societies, had for its only reward what proved to be an excellent guide for the future. The statistics gathered during the fifty years formed the basis of a registration law enacted by Parliament which has been of incalculable benefit to the societies, and has placed them on a thoroughly sound basis. Unfortunately, the statistics compiled in Britain are not available to the general public in America, but known only to a few professional actuaries. About twenty-five years ago, societies having the same object and purpose as the British

Friendly Societies commenced to organize in this country on a haphazard basis, many of which have ceased to exist, and have brought disappointment to hundreds of thousands. It is true that the sad experience has already led to the making of observations, collection of data, and revision of methods; but under a general registration act, providing data accessible to all people, there would be no occasion nor excuse for groping in the dark, and it would effect a saving of millions of dollars to the poorer classes.

It should be remembered that the life insurance carried in the United States alone — and the most of it is carried in fraternal societies and assessment associations — amounts to nearly fourteen billion of dollars. This is considerably in excess of the railroad capital of the United States. The fund accumulated by the companies exceeds the combined indebtedness of all the States in the Union. More than one-sixth of the entire population is directly interested in life insurance, and the whole population is indirectly interested. It is by far the most important branch of social economics.

A great many questions are constantly arising which are fruitful sources of litigation, that under a proper system of registration could not arise. It is sometimes a most difficult matter for a man to establish his age or to be correct in his statement with reference to family history. Official records, which should be competent evidence in any court, would cure many of the difficulties heretofore experienced. Under a proper system of registration the statistician could convert many surmises into facts. For example, it is generally conceded that cancer is on the increase, but as the records of population and deaths from that disease are not kept in this country it cannot be proved; it is merely a surmise.

Our British cousins have the advantage of us in that regard; the surmise has become to them a sad fact. It has been proved that the percentage of deaths from cancer in Britain has increased many fold within the last quarter of a century, which has awakened an interest among the medical fraternity and scientific men in general, and the attention given by them to the cause and cure is already producing a favorable effect.

Another point worthy of mention is the facility a proper system of registration affords for tracing the effect of heredity, which would be conducive to longevity. Unwise marriage alliances are frequently made through ignorance of family history, which registration and

proper enlightenment of the people would avoid. The true function of government is to encourage that which is just and right and conducive to long life and good health, and to prevent that which is unjust and injurious to life and health as well as to morals.

Remarks by Frederick L. Hoffman.

The suggestions of Dr. Wilbur are timely and of more than passing importance. Dr. Wilbur deserves much credit for having brought this matter before the Association in time for careful consideration, and, it is hoped, for the development of an active interest on the part of the Statistical Association in this branch of our decennial census. Thus far the work has not only been enormously hampered by inadequate provision for investigation, but the publication of the results has been delayed so long that the larger part of the investigation into the mortality of the various sections of this country is practically worthless. Today, seven years after the taking of the census of 1890, the most important results in regard to population and mortality have not been published. No information in regard to the age distribution of the population by cities is as yet available, and thus even the use of the local mortality returns is limited for want of this most needed information.

It is true that we have the three monographs of Dr. Billings on the vital statistics of six large cities, but that is all. What we need is, as Dr. Wilbur suggests, monographic studies in regard to the mortality and other vital phenomena of certain regions. This would not be sufficient, but it would be of greater value than the present method, which affords very little information of value in regard to localities, etc., which are not covered by local registration returns. If it were possible to carry this plan into effect it would be desirable to gather information pertaining to the effect of race as a factor in natality and mortality. Thus, in regard to the colored population, a section of Mississippi, Alabama, or South Carolina should be selected as a field for permanent investigation; sections where the colored population predominates, like the counties of Bolivar or Washington, Miss., and other sections where the whites predominate, as for instance, in Blount or Jackson Counties in Alabama.

In regard to the Chinese, it would be desirable to obtain information in regard to mortality, conjugal condition, number of children to

a family, with distinction of wife's nativity, etc., for the few cities — especially San Francisco, Portland, and New York — where the race is sufficiently represented to insure at least an approximate degree of accuracy in the returns. Some information of this character has been collected in the last census of Hawaii, and the results are exceedingly interesting and instructive.

In regard to the Indian, reservations should be selected where the race is sufficiently numerous and permanently settled to insure accuracy of the returns in regard to the living population, which in this race is a more shifting factor than in either of the two foregoing races. The effect of civilized and nomadic life could then be studied in a comparison of the New York State reservations and a typical Western reservation. Many disputed points could thus be settled which are now almost hopelessly lost in useless controversy. In regard to the claimed effect of climate on health it would be desirable to have information as to the duration of residence of the non-native population of certain Southern and Western States. In regard to the mortality from consumption among the native population of certain health resorts of Florida, Colorado, and Southern California, it would be desirable to have more definite information, which could be obtained only by observations extending over a series of years and in a well-defined locality.

But how is this to be brought about through our present census methods? Not unless a very decided stand is taken by those who have a direct interest in the collection and early publication of the results of such investigations. As long as political data dealing only with passing phases of economic conditions take precedence over data dealing with life and health, or the permanent phases of our social conditions, it will not be possible to effect reforms of much importance. There must be developed a direct and active interest in the most important branches of our census inquiry; and this, it would seem to me, can be done in no better manner than through a permanent committee of this Association, which should take up the lines of investigation suggested by Dr. Wilbur in his most excellent and suggestive paper.

Remarks by Dr. S. W. Abbott.

Dr. Wilbur has already shown in a previous paper (*Transactions of the American Public Health Association*, 1896, page 231) that

density of population is an important factor in affecting the introduction and perfection of systems of registration in new districts. Maine, for example, having the least density among the New England States, was also the last to adopt a perfected system of registration of vital statistics; and as population increases in new districts, those areas will also, undoubtedly, give more careful attention to this subject.

Dr. Wilbur's hearty interest in the mode of registration in his own State deserves the coöperation of those who are in authority, since it is only through the means of better legislation that the vital statistics of Michigan can be brought to the condition of perfection which has been made possible in older States. The last report of the vital statistics of Michigan is an example of the work which a thoroughly trained statistician can accomplish with returns of an imperfect character.